

## ABSTRACT

Mouse-like functions of smooth, non-orthogonal movement of cursors, scrolling, panning, and navigating are provided on a handheld device without a detached or semi-detached mouse-like or stylus-like part. Existing graphical user interfaces are used on handheld devices without redesigning the workflow or defining special keys for navigating a cursor or selecting graphical objects. Navigation sensors on a handheld device with a display to detect and measure relative motion of a surface in front of the navigation sensor. This relative motion is then used to move a cursor on the display, or pan or otherwise navigate what is shown on the display. The navigation sensors are placed on the opposite side of the device as the display or on the bottom of a two part hinged device. This allows the user to slide the device around the surface it is placed on to manipulate the display while viewing the display. The user may also move a finger or other body part in front of the navigation device to manipulate the display while viewing the display. The navigation sensors may also serve a dual function. The first function is to aid in the capture of a scanned image by a handheld scanner. Then, after an image has been acquired, the same navigation sensors are used to manipulate the display.